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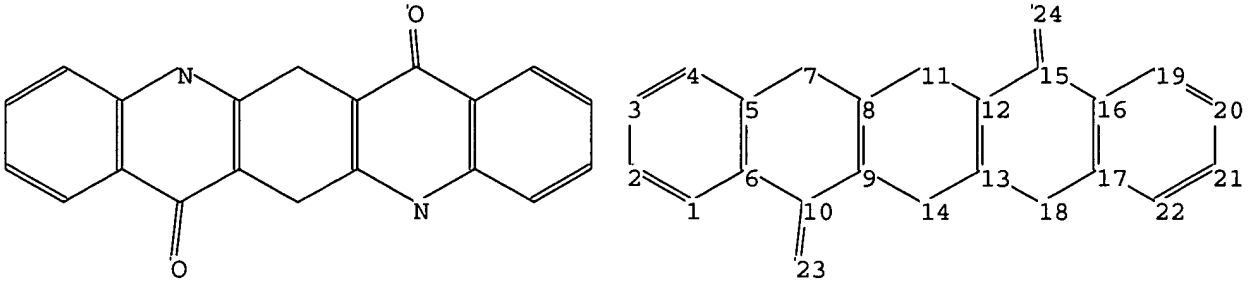
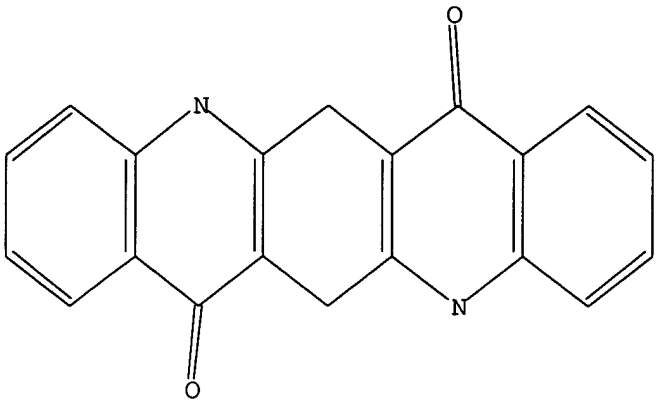


chain nodes :
23 24
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
chain bonds :
10-23 15-24
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-10 7-8 8-9 8-11 9-10 9-14 11-12 12-13
12-15 13-14 13-18 15-16 16-17 16-19 17-18 17-22 19-20 20-21 21-22
exact/norm bonds :
5-7 6-10 7-8 8-9 8-11 9-10 9-14 10-23 11-12 12-13 12-15 13-14 13-18
15-16 15-24 17-18
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 16-17 16-19 17-22 19-20 20-21 21-22

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom
20:Atom 21:Atom 22:Atom 23:CLASS 24:CLASS

L1 STRUCTURE UPLOADED

=> d
L1 HAS NO ANSWERS
L1 STR



Structure attributes must be viewed using STN Express query preparation.

```
=> s l1
SAMPLE SEARCH INITIATED 05:53:35 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED -    586 TO ITERATE

100.0% PROCESSED      586 ITERATIONS                          50 ANSWERS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:        10268 TO    13172
PROJECTED ANSWERS:             866 TO     1854

L2            50 SEA SSS SAM L1

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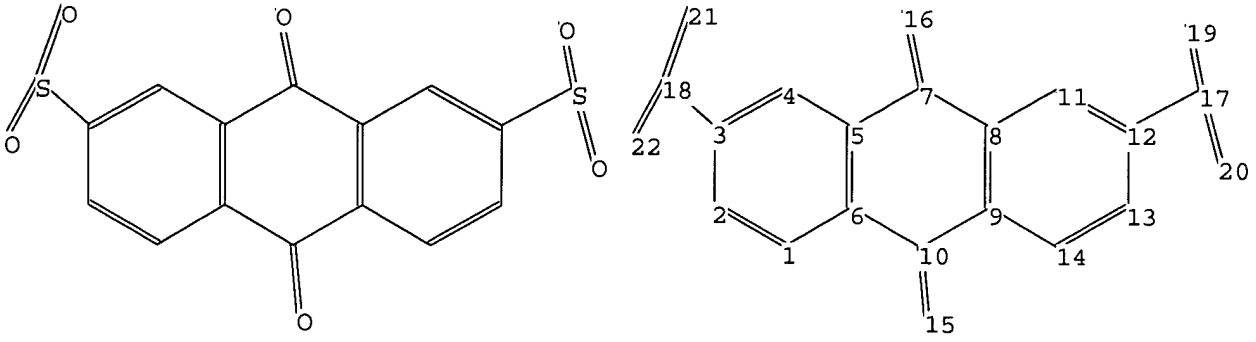

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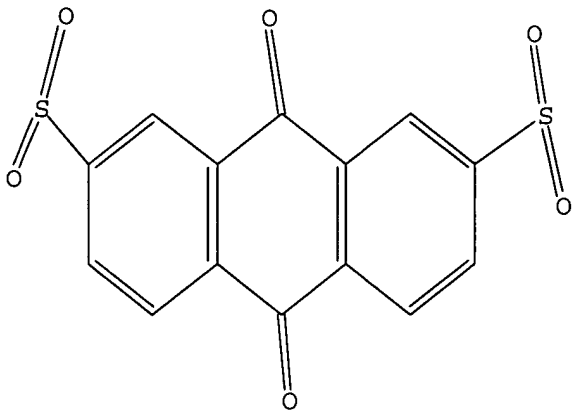
chain nodes :
15  16  17  18  19  20  21  22
ring nodes :
1  2  3  4  5  6  7  8  9  10  11  12  13  14
chain bonds :
3-18  7-16  10-15  12-17  17-19  17-20  18-21  18-22
```

ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-10 7-8 8-9 8-11 9-10 9-14 11-12 12-13
13-14
exact/norm bonds :
3-18 5-7 6-10 7-8 7-16 9-10 10-15 12-17 17-19 17-20 18-21 18-22
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 8-9 8-11 9-14 11-12 12-13 13-14

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:CLASS 16:CLASS 17:CLASS 18:CLASS
19:CLASS 20:CLASS 21:CLASS 22:CLASS

L3 STRUCTURE UPLOADED

=> d
L3 HAS NO ANSWERS
L3 STR



Structure attributes must be viewed using STN Express query preparation.

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SAMPLE SEARCH INITIATED 05:57:07 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 3144 TO ITERATE

63.6% PROCESSED 2000 ITERATIONS 9 ANSWERS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 59517 TO 66243
PROJECTED ANSWERS: 57 TO 507

L4 9 SEA SSS SAM L3

=> s l3 full

```
FULL SEARCH INITIATED 05:57:30 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -  62195 TO ITERATE

100.0% PROCESSED    62195 ITERATIONS                          177 ANSWERS
SEARCH TIME: 00.00.02

L5          177 SEA SSS FUL L3

=> s l5 and l2
L6            0 L5 AND L2

=> file caplus
COST IN U.S. DOLLARS                          SINCE FILE      TOTAL
                                                 ENTRY    SESSION
FULL ESTIMATED COST                             164.34     164.55

FILE 'CAPLUS' ENTERED AT 05:58:18 ON 22 AUG 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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FILE COVERS 1907 - 22 Aug 2005  VOL 143 ISS 9
FILE LAST UPDATED: 21 Aug 2005  (20050821/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

  This file contains CAS Registry Numbers for easy and accurate
  substance identification.

=> s l5 and quinacridone
           272 L5
          1890 QUINACRIDONE
           271 QUINACRIDONES
          1942 QUINACRIDONE
                 (QUINACRIDONE OR QUINACRIDONES)
L7            4 L5 AND QUINACRIDONE

=> d ibib abs histr tot
'HISTR' IS NOT A VALID FORMAT FOR FILE 'CAPLUS'

The following are valid formats:

ABS --------- GI and AB
ALL --------- BIB, AB, IND, RE
APPS -------- AI, PRAI
BIB --------- AN, plus Bibliographic Data and PI table (default)
CAN --------- List of CA abstract numbers without answer numbers
CBIB -------- AN, plus Compressed Bibliographic Data
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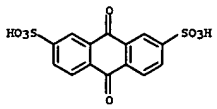
L7 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:650030 CAPLUS
DOCUMENT NUMBER: 141:191921
TITLE: Synthesis of small particle size **quinacridone** of beta crystal phase
INVENTOR(S): Cole, Damien Thurber; Jegsnathan, Suruliappa Gowder; He, Yingxia
PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.
SOURCE: PCT Int. Appl., 25 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004067642	A1	20040812	WO 2003-EP51087	20031222
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2004229057	A1	20041118	US 2004-752617	20040107
PRIORITY APPLN. INFO.:			US 2003-443257P	P 20030128

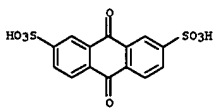
OTHER SOURCE(S): MARPAT 141:191921
AB This invention relates to a process for the production of β-form **quinacridone** pigment by oxidation in the presence of selected additives that promote the formation of the desired crystal phase and particle size. In an example, 6,13-dihydroquinacridone was oxidized using H202 and Na anthraquinonemonosulfonate in the presence of (phthalimidomethyl)-2,9-dichloroquinacridone to give β-**quinacridone** of surface area 43.1 m2/g.
IT **853-67-8**, Sodium 2,7-anthraquinonedisulfonate **736946-19-3**
RL: CAT (Catalyst use); USES (Uses)
(in production of small particle size **quinacridone** pigment of beta crystal phase)
RN 853-67-8 CAPLUS
CN 2,7-Anthracenedisulfonic acid, 9,10-dihydro-9,10-dioxo-, disodium salt (7CI, 8CI, 9CI) (CA INDEX NAME)

L7 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



●2 Na

RN 736946-19-3 CAPLUS
CN 2,7-Anthracenedisulfonic acid, 9,10-dihydro-9,10-dioxo-, dipotassium salt (9CI) (CA INDEX NAME)



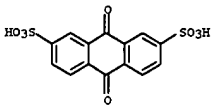
●2 K

L7 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:467965 CAPLUS
DOCUMENT NUMBER: 141:39722
TITLE: Preparation and use of formaldehyde-naphthalene sulfonic acid copolymer-containing nanosize pigment compositions
INVENTOR(S): Baebler, Fridolin
PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.
SOURCE: PCT Int. Appl., 27 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004048482	A1	20040610	WO 2003-EP50840	20031117
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2004138349	A1	20040715	US 2003-714270	20031114
US 6902613	B2	20050607		
CA 2505847	AA	20040610	CA 2003-2505847	20031117
US 2005145140	A1	20050707	US 2005-29958	20050105
PRIORITY APPLN. INFO.:			US 2002-430522P	P 20021127
			US 2003-714270	A1 20031114
			WO 2003-EP50840	W 20031117

OTHER SOURCE(S): MARPAT 141:39722
AB A nanosize pigment composition as a particle growth and crystal phase director
for the preparation of a direct pigmentary organic pigment or in pigment finishing
comprises 50-99 weight% nanosize pigment with average particle size of 1-100 nm
selected from azo, azomethine, methine, anthraquinone, phthalocyanine, perinone, perylene, diketopyrrolopyrrole, thioindigo, thiazinindigo, dioxazine, iminoisoindoline, iminoisoindolinone, **quinacridone**, flavanthrone, indanthrone, anthrapyrimidine, and quinophthalone, and 1-50 weight% low mol. weight polysulfonated hydrocarbon, in particular naphthalene
mono- or disulfonic acid formaldehyde polymer. Thus, formaldehyde and sodium naphthalene sulfonate were polymerized in the presence of **quinacridone** (Cromophtal Red 2020) to obtain **quinacridone** nanoparticles with average size of 4-25 nm.
IT **853-67-8**, Disodium anthraquinone-2,7-disulfonate
RL: CAT (Catalyst use); USES (Uses)
(preparation and application of formaldehyde-naphthalene sulfonic acid copolymer-containing nanosize pigment compns.)
RN 853-67-8 CAPLUS
CN 2,7-Anthracenedisulfonic acid, 9,10-dihydro-9,10-dioxo-, disodium salt (7CI, 8CI, 9CI) (CA INDEX NAME)

L7 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



●2 Na

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:467963 CAPLUS
DOCUMENT NUMBER: 141:39724
TITLE: Synthesis of β- quinacridone pigment from 6,13-dihydroquinacridone
INVENTOR(S): Baebler, Fridolin
PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.
SOURCE: PCT Int. Appl., 22 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004048479	A1	20040610	WO 2003-EP50839	20031117
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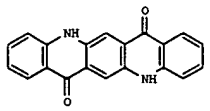
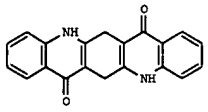
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2004138457	A1	20040715	US 2003-714269	20031114
US 6864371	B2	20050308		
CA 2505763	AA	20040610	CA 2003-2505763	20031117
PRIORITY APPLN. INFO.:			US 2002-429780P P	20021127
			WO 2003-EP50839 W	20031117

OTHER SOURCE(S): CASREACT 141:39724
GI



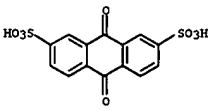
I



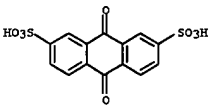
II

L7 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)

AB β- Quinacridone (I) is prepared by the oxidation of alkali metal salt of 6,13-dihydroquinacridone (II) by H2O2 at >30° in a liquid phase composed of water and C1-3 alcs., in the presence of 0.2-4 weight% catalyst, such as anthraquinone and anthraquinone monosulfonic acid, polyvinyl pyrrolidone, a base, a particulate quinone with average particle size <0.2 μm, and a particle growth inhibitor, preferably phthalimidomethyl-, imidazolylmethyl-, pyrazolylmethyl-quinacridone, or quinacridone monosulfonic acid or its salts. Thus, 6,13-dihydroquinacridone was mixed with polyvinyl pyrrolidone powder in methanol before the addition of NaOH, and 2,7-anthraquinone disulfonic acid and H2O2 were then introduced into the system and reacted to provide a bronze colored β- quinacridone with large particle size.
IT 84-49-1, 2,7-Anthraquinone disulfonic acid 853-67-8, Disodium anthraquinone-2,7-disulfonate
RL: CAT (Catalyst use); USES (Uses)
(synthesis of β- quinacridone pigment from 6,13-dihydroquinacridone)
RN 84-49-1 CAPLUS
CN 2,7-Anthracenedisulfonic acid, 9,10-dihydro-9,10-dioxo- (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 853-67-8 CAPLUS
CN 2,7-Anthracenedisulfonic acid, 9,10-dihydro-9,10-dioxo-, disodium salt (7CI, 8CI, 9CI) (CA INDEX NAME)



●2 Na

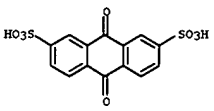
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:60602 CAPLUS
DOCUMENT NUMBER: 140:112813
TITLE: Oxidation process for preparing quinacridone pigments
INVENTOR(S): Baebler, Fridolin; Merstetter, Hans Rudolf
PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.
SOURCE: PCT Int. Appl., 22 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004007623	A1	20040122	WO 2003-EP7337	20030708
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2489989	AA	20040122	CA 2003-2489989	20030708
EP 1521809	A1	20050413	EP 2003-763746	20030708
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
BR 2003012705	A	20050426	BR 2003-12705	20030708
US 2005176959	A1	20050811	US 2003-517412	20030708
PRIORITY APPLN. INFO.:			US 2002-396377P P	20020717
			WO 2003-EP7337 W	20030708

OTHER SOURCE(S): CASREACT 140:112813; MARPAT 140:112813
AB The invention relates to a process of preparing quinacridone by oxidizing a 6,13-dihydroquinacridone salt (corresponding to the quinacridone pigment) with hydrogen peroxide as the oxidizing agent in the presence of 2,7-anthraquinonedisulfonic acid as catalyst. The process is economical and environmentally friendly and yields high-performance pigments in high yield. In an example, 2,9-dichloro-6,13-dihydroquinacridone in MeOH was heated with aqueous KOH. To the product were added Na 2,7-anthraquinonedisulfonate and H2O2 and refluxing continued to give magenta 2,9-dichloroquinacridone in 97.4% purity.
IT 853-67-8, Sodium 2,7-anthraquinonedisulfonate
RL: CAT (Catalyst use); USES (Uses)
(in oxidation process for preparing quinacridone pigments)
RN 853-67-8 CAPLUS
CN 2,7-Anthracenedisulfonic acid, 9,10-dihydro-9,10-dioxo-, disodium salt (7CI, 8CI, 9CI) (CA INDEX NAME)

L7 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



●2 Na

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT